

This is a follow-up to the presentation concerning bad BPMs made at last Thursday's BPM meeting (<http://www.cadops.bnl.gov/RHIC/Instrumentation/bpm/>)

Inspection of one of the 7 data sets (acquired 1/23/08) from the turn-by-turn measurements made with the AC-dipole (/operations/app\_store/FillData/run\_fy08/09628/RHIC/RhicOrbitDisplay/Yellow/orbit\_data/Hacd\_inj\_06.sdds) in the horizontal plane in the yellow ring revealed two major points:

BPMs deemed bad in offline analysis were flagged as bad by the online status bits (in ALL cases)

there are 4 fault categories for the 58 BPMs that were flagged as bad - see next slide

- (1) no trigger on turn 1
- (2) no trigger for some of the BPM readings contained within the 1024-turn sample
- (3) raw counts too low
- (4) "no report" -status

Of the 57 bad BPMs reported, 48 are attributable to (1)-(3) above which are all related to operation at or below the limit of the dynamic range of the BPMs. An entry made in the e-log just prior to the time these data were acquired indicated that the BPM gains were manually set to 1 while during normal operations with approximately the same single-bunch intensities, a script was automatically setting the BPM gains to 10 as of 12/30/07 (see current histories on last slide).

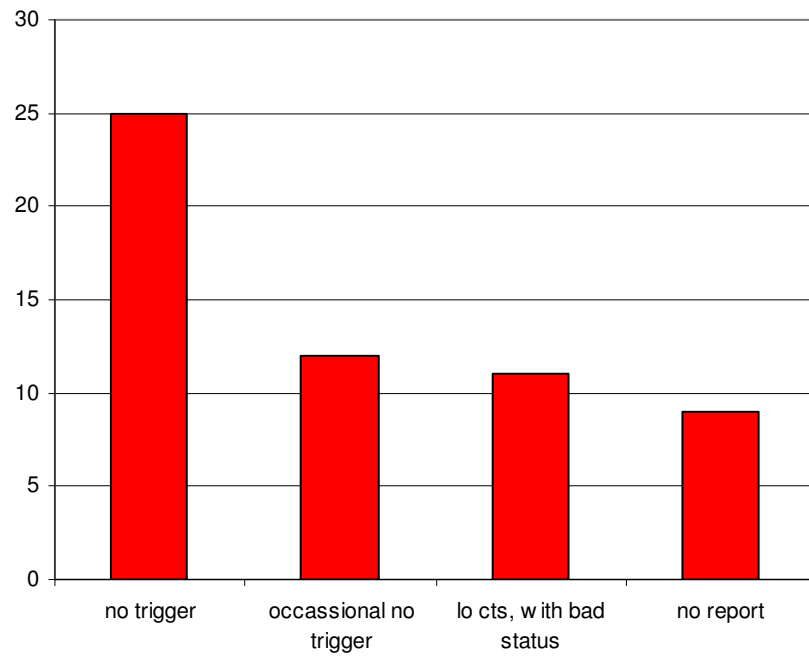
Of the 9 remaining BPMs reporting a status of "no report", 4 have already been addressed (feed-throughs have been replaced), 3 have been identified as having problems (but the present status isn't entirely clear to me), and 2 are outstanding. (A more detailed description already sent to many in the cc is appended.). We will follow up on these outstanding 5 as well as those indicating "no report" in the vertical plane (which hasn't yet been analyzed).

#### Recommendations:

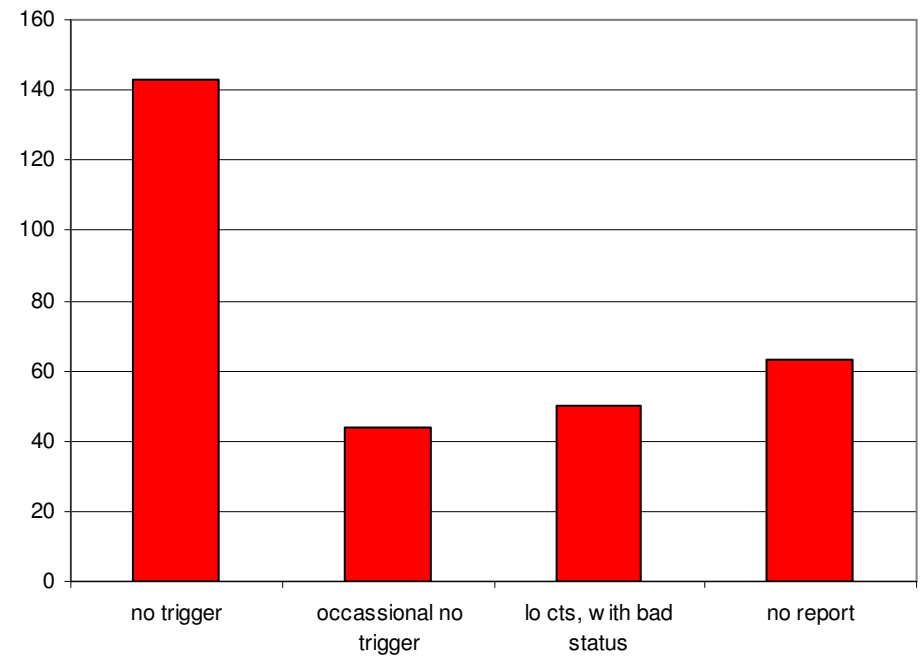
- (1) Before and during measurements, check BPM status (program RhicBpmCheckout) to ensure that beam currents and BPM gain settings are commensurate. Should the number of BPMs showing bad status still be unacceptably large (> 5 percent or so), ask for immediate assistance.
- (2) As mentioned during the meeting, maybe add in the analysis a check of BPM status bits for all acquired turns (not just turn 1) for faster turn-around time of data analysis

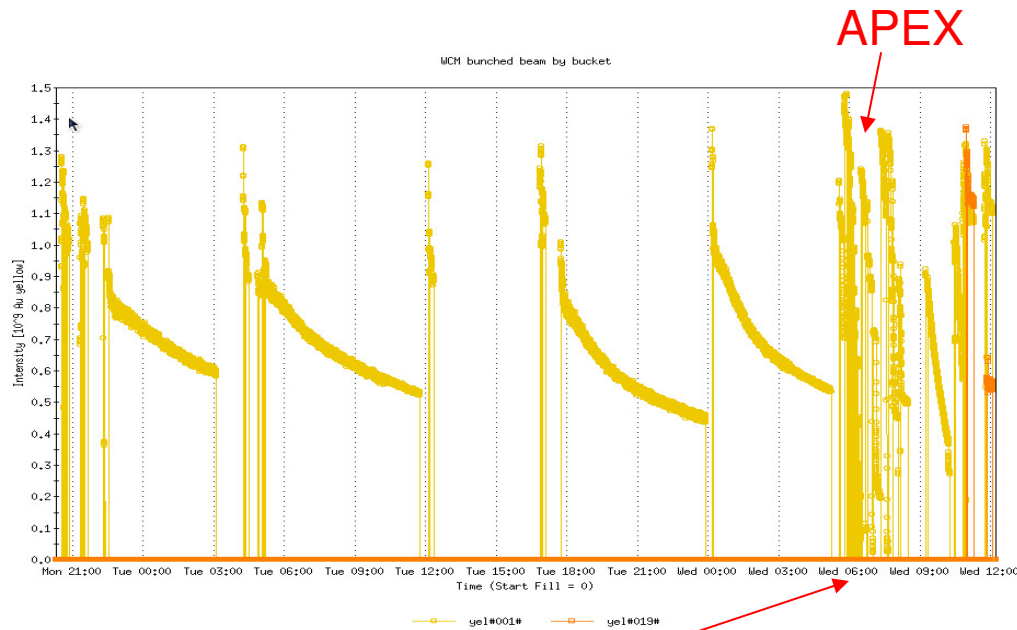
/operations/app\_store/FillData/run\_fy08/09628/RHIC/RhicOrbitDisplay/  
Yellow/orbit\_data/Hacd\_inj\_06.sdds

**Total horizontal bad BPMs: 58**

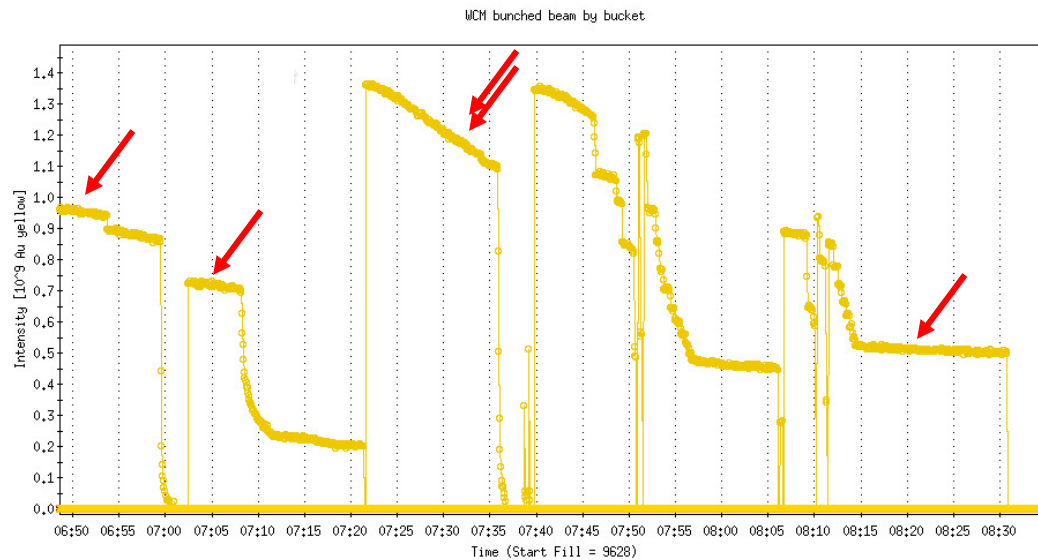


**Total horizontal bad BPM occurences: 300**





bunch 1 beam intensity  
with BPM gain set to 10  
during normal operations



bunch 1 beam intensity  
with BPM gain set to 1

arrows show approximate  
time of measurements  
made with AC-dipole